Contents

BIOCHEMISTRY OF OPIOID RECEPTORS

Chi, Z.-Q., F. Wang & Z.-Y. Li. *Isolation and purification of active opioid binding protein from rat brain* 1

Puget, A., G. Baillat, H. Mazarguil, B. Francès & J.-Cl. Meunier. *Progress in the purification of "Op", the major type of opioid receptor in frog (Rana ridibunda) brain*..... 5

Ohta S., M. Niwa, M. Nozaki, K. Tsurumi, H. Shimonaka, Y. Yamamoto & H. Fujimura. *Characterization of membrane bound and partially purified kappa-type opioid binding site from human placenta*..... 9

Richardson A., F. Brugger, C. Demoljou-Mason, S. Benyhe & E. A. Barnard. *Characterization of Mg^{+}- digitonin solubilized opioid receptors from human placenta*..... 13

Van Ree J.M., J.W. Bruning, F.H.J. Claas, V.M. Wiegant & G. Wolterink. *γ-type endorphin receptors : the use of anti-idiotype antibodies*..... 17

Yao Y.H., J. Gairin, J.-C. Meunier, J.M. Hiller, T.L. Gioannini, J. Cros & E.J. Simon. *Crosslinking of kappa receptors in the guinea-pig cerebellum with [D-Pro^{10}] dynorphin(1-11)*..... 21

Borsodi A., E. Varga, S. Hosztafi & D. Krizsan. *Irreversible binding of C-6 derivatives of morphinane-6- ones to rat brain opioid receptors*..... 25

Gioannini T.L., Y.F. Liu, H.Y. Park, J.M. Hiller & E.J. Simon *Effects of dithiothreitol (DTT) on opioid receptors : evidence for a possible role for disulfide bonds*..... 29

Traynor J.R. & T.G. Franklin. *N-ethylmaleinide alkylation of the mu-opioid receptor suggests different binding modes for mu ligands*..... 33

Maruyama M. & H. Okuyama. *Effects of membrane lipids on modulation of ligand binding to opioid receptors on rat brain membranes*.... 37

Medzihradsky F. *Modulation of opioid receptor mechanisms by membrane lipids : an investigative approach*..... 41

MULTIPLE OPIOID RECEPTORS AND THEIR LIGANDS

Roman F., X. Pascaud, D. Vauche & J.L. Junien. *Characterization of ^{3}H-DAGO, ^{3}H-DSLET and ^{3}H-EKC binding in the guinea pig myenteric plexus*..... 45

Smith J.A.M., J.C. Hunter & J. Hugues. *Analysis of kappa opioid binding sites in the guinea pig using [^{3}H]bremazocine and ^{3}H U 69593*..... 49

Benyhe S., J. Simon, E. Varga, A. Borsodi & M. Wollemann. *The distribution of $kappa_1$ and $kappa_2$ opioid receptor subtypes in frog brain membrane preparation*..... 53

Magnan J. & M. Tiberi. *Comparison between [^{3}H]bremazocine and ^{3}H]ethylketocyclazocine binding in guinea pig brain*..... 57

Meucci E., B.P. Roques & J.M. Zajac. *In vivo binding of μ and δ selective opioid agonists and of endogenous enkephalins*..... 61

Dray A., I.F. James, S.B. Ketchum & M.N. Perkins. *Opioid receptor types in neonatal rat spinal cord : ligand binding and inhibition of nociception in vitro* 65

Tiberi M. & J. Magnan. *Ontogeny of μ-, δ- and κ-opioid binding sites in human brain*..... 69

Nozaki M., M. Kobayashi, E. Imai, M. Hori & H. Fujimura. *Preferred conformation for the mu- or kappa binding site*..... 73

Roman F., X. Pascaud, D. Vauché & J.L. Junien. *Characterization of a non-opioid sigma binding site in guinea pig myenteric plexus*..... 77

NOVEL OPIOID LIGANDS

Francès B., Ch. Moisand & J.-Cl. Meunier. *Radioligand-receptor binding to rapidly screen novel drugs as μ, δ or κ agonists (analgesics ?) or antagonists*..... 81

Schiller P.W., T.M.D. Nguyen & C. Lemieux. *Two new families of opioid peptide analogs displaying extraordinary μ-receptor selectivity and preference for either peripheral or central sites*..... 85

France C.P., J.H. Woods & M.A. Iorio. *Novel opioid agonists structurally related to haloperidol*..... 89

Rees J.M.H., B. Cox, S. Tanzil, L. Newboult, K. Kimber & B. Robinson. *In vitro opioid activity of 9,10 dimethyl-6-hydroxyechiboline and its 10-allyl derivative*..... 93

Loew G.H., C. Olsen, E. Uyeno, L. Toll, W. Polgar, A. Judd & C. Keys. *Potent enkephalin-like opioid tetrapeptide analgesics with modified tyrosine residues*..... 97

Kramer T.H., G.K. Lui, H.I. Yamamura, G. Toth, V.G. Hruby & T.F. Burks. *A DPDPE analogue with increased selectivity at delta opioid receptors*..... 101

Lemaire S., B. Belleau & F. Jolicoeur. *α sulfallorphan, a κ opioid antagonist selective for endogenous Met-Enk- Arg^6, Phe^7] and dynorphin B*..... 105

Traynor J.R., A.G. Hayes & A.J. Lawrence. *Binding profile of the potent selective kappa antagonist norbinaltorphimine*..... 109

Clemence F., O. Le Martret, A.M. Moura & M. Fortin. *Synthesis and diuretic activity of RU 49679 : a new highly selective kappa opioid receptor agonist*..... 113

Bochet P., Y.M. Zhang, S. Labidalle, C. Thal & J. Rossier. *Binding properties of hexahydrodibenzofuran structural analogs of morphine*..... 117

Schwartz M.A. & P.T.K. Pham. *Oxidative coupling of cis-3,N-Bis (methoxycarbonyl)-N-norreticuline. An approach to the asymmetric synthesis of morphine alkaloids*..... 121

MOLECULAR AND CELLULAR POST-RECEPTOR EVENTS

Meunier J.-Cl., B. Francès, A. Pascaud & A. Puget. *Evidence for the physical interaction of opioid receptors and of G proteins..* 125

Ueda H., H. Misawa, T. Katada, M. Ui, H. Takagi & M. Satoh. *Distinct modes of coupling of μ-, δ-, κ-opioid receptors with GTP-binding proteins in brain membranes.....* 129

Wong Y.H., C.D. Demoliou-Mason & E.A. Barnard. *Uncoupling of the opioid receptor G-protein complexes by 5'-p-fluorosulfonyl-benzoylguanosine.....* 133

Szucs M. & G.J. Coscia. *Guanine nucleotide and cation modulation of ^{3}H-DPDPE and ^{3}H-U-69593 binding in adult and neonatal rat brain.....* 137

Schwarz S., A.G. Katki, G.Z. Zhou, E. Rovati, P.J. Munson & D. Rodbard. *μ_1, μ and δ opioid receptors are differentially modulated by cations and GTP analogs. Modeling with quantitative ligand analysis.....* 141

Mollereau C., A. Pascaud, A. Puget & J.-Cl. Meunier. GppNHp selectively inhibits high affinity binding of agonists to the frog brain "Op"-opioid site in digitonin solution..... 145

Ueda H., H. Harada, Y. Wada, T. Katada, M. Ui, H. Takagi & M. Satoh. *The stoichiometry of functionnal coupling of purified μ-opioid receptors with purified G_i or G_o.....* 149

Demoliou-Mason C.D., Y.H. Wong & E.A. Barnard. *Opioid receptor -G protein interactions : pertussis toxin, Li^+ effects and reconstitution studies.....* 153

Szucs M. & C.J. Coscia. *Rat brain microsomes contain G-proteins but uncoupled opioid receptors.....* 157

Boyer M.J., J. Polastron, J.-P. Thouvenot, J.-Cl. Meunier & Ph. Jauzac. *Mu opioid receptors inhibit adenylate cyclase in rabbit cerebellum.....* 161

Bidaut-Russell M. & A. Howlett. *Opioid and cannabinoid analgetics both inhibit cyclic AMP production in the rat striatum.....* 165

Johnson S.M., N.P. Pillai & M. Costa. *Lack of effect of forskolin on the inhibitory action of (D-Ala , N-Me-Phe , Gly -ol) enkephalin on myenteric neurons of guinea pig ileum.....* 169

Satoh M., H. Ueda, Y. Yoshihara, H. Misawa, N. Fukushima, M. Ui & H. Takagi. *Kyotorphin receptors mediate phospholipase C stimulation via G_i- protein.....* 173

Ueda H., S. Tamura, T. Yasumoto, H. Takagi & M. Satoh. *κ-opioid receptor mediates inhibition of ω-conotoxin -sensitive Ca^{++} channel in nerve terminals.....* 177

Seward E.P., G. Henderson & W. Sadée. *Inhibition of calcium currents by μ and δ opioid receptor activation in differentiated human neuroblastoma cells.....* 181

Costa M., S.M. Johnson & M.B. Kennedy. *Ca^{++}/calmodulin dependent protein kinase II is present in two subpopulations of guinea pig enteric neurons.....* 185

Crain S.M. & K.F. Shen. *Dual excitatory and inhibitory opioid modulation of the action potential duration of mouse dorsal root ganglion neurons in culture*..... 189

Satoh M., K. Ishihara, H. Katsuki & M. Sugimura. *Opioidergic modulation of long-term potentiation in the guina pig hippocampus in vitro*..... 193

Simonnet G., M. Allard, P. Legendre, A. Guzman, S. Geoffre, G. Precigoux, M. Hospital & J.D. Vincent. *Characterization of morphine modulating peptide (FLFQPQRF amide) receptors in spinal cord cells by biochemical and electrophysiological approaches*..... 197

Falke N., W. Guenther & R. Martin. *Dynorphin(1-8) binds to kappa opioid receptors in neurosecretory endings and inhibits oxytocin but not vasopressin release*..... 201

Cesselin F., J.J. Benoliel, S. Bourgoin, A. Mauborgne & M. Hamon. *Effects of opioid receptor agonists on the in vitro release of CCK-8-like material from the rat substantia nigra and spinal cord*..... 205

Broderick P.A. & F.J. Phelan. *An in vivo voltammetric analysis of dopamine release in nucleus accumbens : I. Morphine effects. II. Cocaine effects*..... 209

Derrick B.E. & J.L. Martinez, Jr. *A unique, opioid peptide-dependent form of long-term potentiation is found in the CA3 region of the rat hippocampus*..... 213

OPIOID PEPTIDES : BIOSYNTHESIS, PROCESSING AND DEGRADATION

Beaubien B.C. & J. Douglass. *Regulatory elements of pro-enkephalin and pro-opiomelanocortin genes : receptor-mediated responses*..... 217

Zakarian S., M.S. Eleazar & N.K. Silvers. *Immune regulation of proopioimelanocortin (POMC) biosynthesis and processing*..... 221

Kowalski C., P. Giraud, F. Boudouresque, J.C. Lissitzky, A. Cupo, M. Renard, R.M. Saura & C. Oliver. *Enkephalins expression in* striatal cell cultures..... 225

Cupo A., L. Leger, Y. Charnay, O. Fourrier & Th. Jarry. *Met-enkephalin-Arg-Gly-Leu immunoreactivity is not present in the cat*..... 229

Soeter N.M. & J.P.H. Burbach. *γ-endorphin generating enzyme activity in rat brain : partial purification and comparison to other peptidases*..... 233

Shen F.S. & I. Lindberg. *Salt inhibition of the adrenal enkephalin- generating trypsin-like enzyme*..... 237

Rouge P., P. Ranfaing & H. Mazarguil. *Basic amino acid doublets act as secondary recognition signals for the proteolytic cleavage of pro-enkaphalins*..... 241

Plevin R. & M.R. Boarder. *Investigations of double basic cleavage activity in highly purified chromaffin granules*..... 245

Rossier J. & E. Barrès. *A new, rapid and sensitive radiometric assay for carboxypeptidase H (EC 3.4.17.10)*..... 249

Malfroy B., H. Kado-Fong, D. Gies, C. Gorman, B. Bridenbaugh, K. Mulholland, J. Marsters & J. Burnier. *Recombinant human enkephalinase (neutral endopeptidase) : comparison with thermolysin*..... 253

Llorens-Cortes C., C. Gros, M.P. Martres, A.M. Clot, D. Le Bars & J.C. Schwartz. *Changes in YGG levels elicited by drug treatments and noxious stimulations*..... 257

CELLULAR LOCALIZATION OF OPIOID SYSTEMS

Beaudet A., D. Marcel & E. Moyse. *Cellular localization of mu opioid receptors in the locus coeruleus of the rat*..... 261

Delay-Goyet P., J.M. Zajac, G. Gacel & B.P. Roques. *Quantitative autoradiographic distribution of delta opioid binding sites in rat brain using [^{3}H]DSTBULET as a highly selective probe*..... 265

Jomary C., J.-E. Gairin, J. Cros & J.-Cl. Meunier. *Radioautographic distribution of human supra-spinal κ-opioid binding sites with ^{125}I-DPDYN*..... 269

Conrath M. & A. Cupo. *Immunocytochemical demonstration of brain delta opiate receptors using anti-idiotypic antibodies*..... 273

Kornblum H.I., S.E. Loughlin, J.H. Fallon & F.M. Leslie. *Developmental appearance of opioid receptors in embryonic and neonatal rat brain using [^{125}I]β-endorphin : an autoradiographic study*..... 277

Kowalski J., P. Petrillo, M. Sbacchi & A. Tavani. *Distribution of μ-, δ- and κ-opioid sites in rat and guinea pig spinal cord*.. 281

Dashwood M.R., D.S. McQueen & K.M. Spyer. *Are opioid receptors associated with chemoreceptor afferent terminals in the cat medulla oblongata ?*..... 285

Bouchenafa O. & A. Livingston. *Distribution of immunoreactive met-enkephalin and autoradiographic [^{3}H]DAGO and [^{3}H]DPDPE in the spinal cord of the sheep*..... 289

Hassan A.H.S., O.F.X. Almeida, I. Fergas-Moya, Ch. Gramsch & A. Herz. *Immunocytochemical detection of opioid receptors, opioid peptides and corticotropin-releasing hormone in rat brain and NG 108-15 cells* 293

Günther W. & R. Martin. *Localization of preproenkephalin mRNA-synthesizing neurons in the bovine hypothalamus by in-situ hybridization*..... 297

Molineaux C.J., E. Gurpide & F. Schatz. *Leu- and Met- enkephalin and dynorphin immunoreactivities in human endometrial tissue*.... 301

Steele P.A., M. Costa & J. B. Furness. *Immunoreactivity for prodynorphin derived peptides in the submucous plexus of guinea pig ileum*..... 305

Steele P.A., C.A. Turner & R. Murphy. *Prodynorphin immunoreactive peptides in guinea pig ileum*..... 309

Venn R.F., I.S.C. Williams, J.S. Morley & J.B. Miles. *Beta-endorphin in human perinatal and adult spinal cord*..... 313

Pollard H., J.N. Wilcox, B. Malfroy, P. Ronco, P. Verroust & J.-C. Schwartz. *Localization of enkephalinase (EC 3.4.24.11) in rat brain : radioimmunohistochemical and mRNA hybridization data* 317

Back S.A., M.E. Hargreaves & C. Gorenstein. *Coordinate decrease in enkephalinase and cholinergic enzyme staining in response to hypoglossal axotomy supports a role for enkephalinase in neurotransmission*..... 321

Cupo A., J.P. Niel, J.P. Miolan, Y. Jule & Th. Jarry. *Enkephalins in the gastrointestinal tract and in the prevertebral ganglia of the cat*..... 325

REGULATION OF OPIOID SYSTEMS

Simantov R., C. Klein & R. Levy. *On mechanisms that control the expression of opioid receptors : effect of chronic neuronal activation and opioid antagonists*..... 329

Nikolarakis K.E., O.F.X. Almeida & A. Herz. *Auto- and cross-regulation of opioid peptide release by presynaptically located opioid receptors*..... 333

Yoburn B.C., S.O. Franklin, S.S. Gross, S.E. Calvano & C.E. Inturrisi. *Rat adrenal medullary enkephalins and catecholamines are differentially regulated by vascular and neuronal influences*..... 337

Spampinato S., T. Bachetti, M. Canossa & S. Ferri. *Release of dynorphin B from superfused rat hypothalami : effect of depolarizing agents*..... 341

Barg J. & R. Simantov. *Guinea pig aggregating brain cell cultures express a high density of kappa opioid receptors : a comparison with the in vivo developmental profile*..... 345

Zhang J.S., S. Plevy, H. Albeck, J. Culpepper-Morgan, J. Friedman & M.J. Kreek. *Effects of age on distribution of preproenkephalin- like mRNA in the gastrointestinal tract of the guinea pig*..... 349

Soliman M.R.I., N. Himaya & C.M. Winget. *Diurnal variation in the effect of ethanol on rat brain levels of methionine-enkephalin*.. 351

Gianoulakis C., D. L'Abbee & D. Moronval. *Direct evidence of a biphasic effect of ethanol on the pituitary and hypothalamic β-endorphin release*..... 355

Weihe E., D. Nohr, M.J. Millan, C. Stein, C. Gramsch, V. Höllt & A. Herz. *Experimental mono- and poly-arthritis differentially intensify immunostaining of multiple proenkephalin and prodynorphin opioid peptides in rat lumbosacral neurons* 359

Roquefeuil B., N. Bressot, P. Colson, P. Ginies, N. Poujol & D. Kong A Siou. *Cortisol and β-endorphin cerebrospinal fluid levels in patients with chronic low back pain* 363

Khawaja X.Z. & I.C. Green. *Opioid peptides in genetically obese (ob/ob) and lean mice tissue levels*..... 367

Sweep C.G.J., I. Barna & V.M. Wiegant. *Dual effects of vasopressin on the concentration of β-endorphin immunoreactivity in rat cerebrospinal fluid* 371

Guan X.-B., G.-M. Li, B.-C. Lin, Y.-X. Zhu & H.-N. Zhu. *Role of vasopressin in control of beta-endorphin release during stress*..... 375

Singh U.P.. *Study of some genetic factors leading to increased opium and morphine yield in opium poppy*..... 379

Krumins S.A., V.S. Seybold & A.A. Larson. *Effects of substance P (SP) and SP fragments on opioid receptor binding in mouse brain and spinal cord : interaction of the N-terminal portion of SP with μ_1 sites*..... 383

Tortella F.C., L. Echevarria, J.W. Holaday, N. Kazmierski, V.J. Hruby, T.F. Burks & J.E. Shook. *Opioid antagonist properties of CTP, a somatostatin analog : in vivo selectivity for mu-directed ligands*..... 387

Varga E., S. Hosztafi & A. Borsodi. *^{3}H-dihydroisomorphine, an universal opioid ligand with dopaminomimetic properties*..... 391

Dhasmana K.M., A.K. Banerjee, H.A. de Ruyter, N. Rating & W. Erdmann. *Role of dopamine receptors in analgesia and gastrointestinal transit*..... 395

Lotwick H.S. & L.W. Haynes. *The regulation of acetylcholinesterase and acetylcholine receptor in quail myotubes by beta-endorphin C-terminal fragment*..... 399

Loughlin S.L., C. M. Annis, D.R. Twardzik, D.C. Lee, L. Gentry & J.H. Fallon. *Growth factors in opioid rich brain regions : distribution and response to intrastriatal transplants*..... 403

Chavkin C. & E.S. Swearengen. *Differential regulation of NMDA-induced neuronal excitation by opioid, PCP and sigma receptors*.. 407

ANALGESIA

Hill R.G. & J. Hughes. *Opioid analgesics : CNS sites and mechanisms of action*..... 411

Hamon M., D. Le Bars, S. Bourgoin, A.M. Clot & F. Cesselin. *Changes in the activity of spinal enkephalinergic neurones in relation to nociception and pain*..... 415

Rivot J.P., D. Pointis & J.M. Besson. *Effect of systemic morphine on the activity of the descending raphe-spinal serotoninergic system in freely moving rats : in vivo studies using 5-hydroxyindole electrochemical detection*..... 419

Inoki R., N. Yonehara, T. Shibutani, Y. Hirota & Y. Imai. *Influence of morphine on the descending monoaminergic systems to the trigeminal nucleus caudalis of the rabbit*..... 423

Inoki R., S. Maeda, H. Ichikawa, S. Matsuo & M. Akai. *A possible modulation of sensory transmission by opioid peptides at primary afferent neurons in trigeminal ganglion*..... 427

Bing Z., L. Villanueva & D. Le Bars. *Naloxone reversal of both noxious- and acupuncture- evoked inhibitions of trigeminal convergent neurons*..... 431

Haley J.P., A.F. Sullivan & A.H. Dickenson. *Opioid inhibition of prolonged nociceptive activity in the rat dorsal horn*..... 435

Villanueva L., Bing Z. & D. Le Bars. *Effects of intravenous morphine upon noxions evoked responses of rat subnucleus reticularis dorsalis (SRD) neurones*..... 439

Headley P.M. & C.G. Parsons. *Mu and kappa opioid 'selectivity' between spinal nociceptive reflexes depends on the intensity, not on the modality, of the stimulus*..... 443

Stinus L., P. Toulet, M. Auriacombe, J. Tignol & M. Le Moal. *Transcutaneous electrical stimulation increases morphine-induced analgesia : double blind study*..... 447

Sanchez-Blazquez P. & J. Garzon. *Both pertussis toxin and KCl, given i.c.v. reduce the efficacy of opioids to produce supraspinal analgesia in mice*..... 451

Sullivan A.F., H.J. McQuay & A.H. Dickenson. *The spinal antinociceptive actions of morphine metabolites morphine-6-glucuronide and normorphine in the rat*..... 455

Millan M.J., A. Czlonkowski & A. Herz. *CNS κ-opioid receptors mediate antinociception against both pressure and thermal but not electrical stimuli in the rat*..... 459

Freye E., M. Schnitzler & M. Traub. *Opioid induced respiratory depression and antinociception are mediated by different subreceptors*..... 463

Heyman J.S. & F. Porreca. *Modulation of mu mediated antinociception by delta agonists in the mouse*..... 467

Parsons C.G. & P.M. Headley. *What doses of intravenous naloxone differentiate between mu- and kappa- opioid effects on spinal nociceptive reflexes in the rat ?*..... 471

Schmidt C., J. Xie, M.C. Fournie-Zaluski, J. Peyroux & B.P. Roques. *Antinociception and endogenous enkephalins* 475

Cowan A., F. Porreca & H. Wheeler. *Comparison of PD117302 and morphine in a rat tonic pain model*..... 479

Colombo M., A. La Regina, P. Petrillo & A. Tavani. *An opioid κ-selective compound, PD 117302, induces analgesia without inhibiting gastrointestinal propulsion in rats*..... 483

Jackson H.C. & I. Kitchen. *Antinociceptive effects of the mu-selective agonist [D-Ala², MePhe⁴, Glyol⁵]enkephalin in 10-day old neonatal rats*..... 487

Furst S. & K. Gyires. *Central and peripheral analgesic actions of morphine compared to various non-steroidal anti-inflammatory drugs*..... 491

Ley S., A. Dash, A. Waterman & A. Livingston. *A comparison of the analgesic effects of intrathecal α_2 adrenoceptor agonists and opioids in conscious unrestrained sheep*..... 495

Parsons C.G. & P.M. Headley. *Do 'sigma' receptors mediate antinociception in the spinal cord ?*..... 499

Dierssen M.M., J. Florez & M.A. Hurle. *Blockade of calcium channels with nimodipine enhances opiate analgesia in naive and tolerant rats*..... 503

Garzon J. & P. Sanchez-Blazquez. *Protection against the abolishing effect of i.c.v. KCl upon opioid analgesia in mice : a comparitive study with pertussis toxin*..... 507

Giros B., C. Gros, J.C. Schwartz, A. Michael-Titus, J. Costentin & J.M. Lecomte. *Antinociceptive and biochemical effects of a new potent and systemically active inhibitor of cerebral aminopeptidases*..... 511

Venn R.F., D. Hucks, J. McCarthy & J.C.D. Wells. *A fast reliable assay for morphine and its metabolites*..... 515

Chauveau J., V. Fert, A.M. Morel and M.A. Delaage. *A new, rapid and specific enzyme immunoassay for serotonin in cerebrospinal fluid, plasma and serum*..... 519

AUTONOMIC EFFECTS OF OPIOIDS

Caffrey J.L., R.J. Sinclair & J.F. Gaugl. *Opiate actions in the heart and peripheral vasculature* 523

Hong M., K. Jhamandas, P. Angelogianni & C. Gianoulakis. *Hypothalamic release and actions of β-endorphin fragments*..... 527

May C.N., C.J. Whitehead, M.R. Dashwood & C.J. Mathias. *Differential effects of mu, delta and kappa opioid agonists on sympatho-adrenal outflow and respiration in conscious rabbits*... 531

Florez J., M.M. Dierssen & M.A. Hurle. *Influence of nimodipine on the respiratory effect of sufentanyl at the brain stem level*.... 535

Herrero J.F. & R.E. Rodriguez. *Cardiovascular effects produced by the intrathecal administration of the opioid selective agonist DAGO*..... 539

Kraft K., J. Diehl, R. Kolloch & K.O. Stumpe. *Chronic delta receptor antagonism retards development of hypertension in spontaneously hypertensive rats*..... 543

Rhee H.M. & D. Hendrix. *Inhibitory actions of propanolol against bradycardia induced by met-enkephalin in rabbits*..... 547

Sarne Y. *Non-opiate effects of opioid agonists and antagonists on cardiac muscle* 551

Bai B., F. Qu, C.Y. Song, B.C. Lin & H.N. Zhu. *The role of beta-endorphin in cerebral ischemia of Mongolian gerbils*..... 555

Iwai T., S. Ohta, M. Nozaki, K. Tsurumi, H. Yamada, M. Yamamoto & H. Fujimura. *Characterization of opioid receptor in cerebral ischemia (I) The variations of receptor binding property*..... 559

May C.N., M.R. Dashwood, C.J. Whitehead & C.J. Mathias. *Cardiovascular effects of centrally administered mu, delta and kappa opioid agonists in conscious rabbits : correlation with receptor distribution*..... 563

Sheldon R.J., R. Jiang & F. Porreca. *Central and peripheral opioid regulation of intestinal absorption in the mouse*..... 567

Defaux J.P., X. Pascaud & J.L. Junien. *Effects of specific mu, delta and kappa opioid agonists on duodenal bicarbonate secretion in anesthetized rats*..... 571

Lopez Y., J. Fioramonti & L. Bueno. *Central and peripheral control of the postprandial pyloric spiking activity by endogenous opiates in dogs*..... 575

Bueno L., M. Guê, J.L. Junien & M. Alvinerie. *Origin of the blocking effects of kappa opioid agonists on stress-induced gastric motor inhibition in dogs*..... 579

Soulard C., X. Pascaud & J.L. Junien. *Differential effects of mu and kappa opioid agonists on urinary bladder motility in conscious rats*..... 583

Kennedy C., F.C. Law & G. Henderson. *Multiple actions of putative sigma receptor ligands on the mouse vas deferens in vitro*..... 587

Gue M. & L. Bueno. *Opposite effects of mu and kappa opioid agonists on feeding induced gastric relaxation in dogs* 591

NEUROENDOCRINE & GENERAL EFFECTS OF OPIOIDS

Bicknell R.J. & B.-G. Zhao. *κ-receptor function at neuroendocrine secretory terminals* 595

Schafer M.K.-H., R. Day, J.P. Herman, V. Kwasiborski, C.D. Sladek, H. Akil & S.J. Watson. *Effects of electroconvulsive shock or dynorphin in the hypothalamic -neurohypophysial system of the rat* 599

Bianchetti A., G. Mereu, W. Fratta & L. Manara. *The peripherally selective opioid antagonist SR 58002C prevents morphine hyperprolactinemia but not morphine-increased firing of nigro-striatal dopaminergic neurons in rats* 603

Clarke G. & D.M. Wright. *Opioid inhibition of milk-yield in conscious lactating rats* 607

Van Loon, G.R., J. Kiritsy-Roy & L. Marson. *Mu-opioid receptors in brain regulate basal and stress-induced sympathetic and parasympathetic neuronal activity and adrenomedullary secretion* 611

Tejwani G.A., K.P. Gudehithlu, S.H. Hanissian, I.E. Gienapp, C.C. Whitacre & W.B. Malarkey. *Naltrexone inhibits rat mammary tumorigenesis induced by stress and a carcinogen* 615

Nyberg F., S. Lyrenäs, G. Koch & L. Terenius. *Assay and characterization of beta-casomorphin-8-like immunoreactivity in human cerebrospinal fluid* 619

Weihe E., E. Nowak, B. Gauweiler, S. Stuppi & D. Nohr. *Proenkephalin-derivatives are co-messenger candidates in cranial post ganglionic parasympathetic neurons : opioid control of exocrine function ?* 623

Kayser V. & G. Guilbaud. *Further evidence for a bidirectional effect of systemic naloxone in a model of acute and localized hyperalgic inflammation* 627

Gao G.C., B.C. Lin, K. Sun & C.H. Wang. *The role of β-endorphin in* experimental burnshock 631

Stein E.A., J.M. Hiller & E.J. Simon. *Alterations in opioid receptor binding following stressful stimuli in the rat* 639

Shelly M.P., S. Walker & G.R. Park. *The pharmacokinetics of alfentanyl in patients following liver transplantation* 643

Manley H.C. & L.W. Haynes. *Characterization of the chemotactic response of human neutrophil polymorphonuclear leukocytes to beta-endorphin* 647

Nakashima M., M. Niwa, M. Nozaki, K. Tsurumi & H. Fujimura. *Preventive effect of kappa selective ligand on aggregation induced by ADP or collagen in human platelet* 651

BEHAVIORAL EFFECTS OF OPIOIDS

Kirkham T.C. & S.J. Cooper. *Interactions between sucrose concentration and the time course of naloxone suppression of sham feeding : evidence for opioid mediation of food palatability*..... 655

Hart S.L., S.C. Friend & D.A. Cowan. *Alteration of delta and kappa opioid receptor mediated activity in mice by an anabolic steroid*..... 659

Xu H., Y.H. Yao, J.X. Huang & Z.Q. Chi. *Effects of opioids on rotational behavior of rats*..... 663

Bals-Kubik R., T. Shippenberg & A. Herz. *Reinforcing effects of opioids in the rat : selective antagonism by β-endorphin (1-27)*..... 667

Gardner E.L., W. Paredes, D. Smith & R.S. Zukin. *Facilitation of brain stimulation reward by Δ^9-tetrahydrocannabinol is mediated by an endogenous opioid mechanism*..... 671

Henriksen S.J. & R.L. Hakan. *Responses of nucleus accumbens neurons to systemically and locally administered opiates provide evidence for dopamine (DA)-dependent and DA-independent circuity underlying opiate self-administration*..... 675

Gouret C.J., R. Porsolt & J.L. Junien. *Phencyclidine (PCP) amnesic effect in mice is not opiate receptor mediated. Involvement of its NMDA blocking activity*..... 679

Shippenberg T. & A. Herz. *Lithium produces its aversive effects via an interaction with μ-opioid receptors*..... 683

Chaturvedi S.K. *Pain sensitivity in psychosis and the endorphin theory of physhosis*..... 687

TOLERANCE, DEPENDENCE & ADDICTION

Morris B.J. & A. Herz. *Simultaneous down-regulation of kappa binding sites and up-regulation of mu binding sites following chronic agonist/antagonist treatment*..... 691

Bhargava H.N., A. Gulati & P. Ramarao. *Opioid receptor subtypes in brain regions and spinal cord of rats treated chronically with U-50,488H, a kappa opioid receptor agonist*..... 695

Gulati A. & H.N. Bhargava. *The binding of ^{3}H-DAGO, ^{3}H-DSTLE and ^{3}H-EKC to brain regions and spinal cord of morphine tolerant-dependent mice*..... 699

Lang J. & I. Costa. *Chronic naloxone treatment of NG108-15 cells alters the function but not the amount of pertussis toxin substrate*..... 703

Schulz R., J. Lang & F. Sinowatz. *Chronic fentanyl treatment of guinea pigs increases the amount of G-proteins in the myenteric plexus*..... 707

Hollt V., I. Haarmann & S. Reimer. *Opioid peptide gene expression in rats after chronic morphine treatment*..... 711

Aceto M.D., E.R. Bowman & M.A. Iorio. *Evaluation of N-butyrophenone prodine-like compounds with analgesic/ neuroleptic properties in mice and morphine-dependent rhesus monkeys* 715

Olley J.E., T.T. Pham & G.K.L. Tiong. *Opiate tolerance and dependence of the guinea pig ileum after chronic exposure in vivo and in vitro* 719

Ramarao P. & H.N. Bhargava. *Pharmacological effects of morphine in rats rendered tolerant to U-50,488H, a kappa opioid receptor agonist* 723

De Montis G., P. Devoto, P. Saba, A. Porcella, D. Meloni & A. Tagliamonte. *Chronic SCH23390 produces tolerance to morphine extrapyramidal effects* 727

Matwyshyn G.A., A. Gulati & H.N. Bhargava. *5-HT$_1$ and 5-HT$_2$ receptors on cerebral cortical membranes of morphine tolerant-dependent and abstinent rats* 731

Szikszay M. & G. Benedek. *Sensitization or cross-tolerance to morphine after different types of chronic stress* 735

Van Ree J.M., G.J. Sweep, J. De Vry & V.M. Wiegant. *Involvement of β-endorphin in drug self administration* 739

Chahl L.A. & J.S. Chahl. *Substance P content in brain regions of the guinea pig following morphine and morphine withdrawal* 743

Chang A.P.L. & W.R. Dixon. *Effect of hexamethonium on blood pressure, heart rate and plasma catecholamine levels in conscious, unrestrained morphine-dependent rats undergoing naloxone-precipitated withdrawal* 747

Loimer N.J., O. Presslich, K. Lenz & R. Schmid. *Ultrashort opiate detoxification with large doses of naloxone* 751

Coimbra-Farges R., A. Puget, C. Jomary, C. Moisand & J.-Cl. Meunier. *Opioid receptors in afghan pika brain* 755

Russell R.D., K.-J. Chang & W.D. Watkins. *Alternated antinociception via delta and mu receptors in the rat : a means to control opioid analgesic tolerance* 759

Chipkin R.E., M.B. Latranyi & D. McHugh. *SCH34826, an enkephalinase inhibitor analgesic, does not produce tolerance or dependence in rats* 763

Russell J.A., K. Pumford & G. Leng. *Opiate dependence in a neuroendocrine neurone system* 767

Stinus L., J. Jauregui, J.M. Deminière & M. Le Moal. *Addictive properties of opiates are increased by chronic blockade of mesolimbic dopaminergic transmission* 771

Lombard M.C., D. Besse & J.M. Besson. *A comparison of the effects of iv naloxone on the activity of spinal cord nociceptive non-specific dorsal horn neurons in arthritic and normal morphine tolerant rats* 775

Chaturvedi S.K. *Psychopolitics of narcotics* 779